



J. F.

PATENT
Attorney Docket No. VXM-001B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Vitaliano *et al.*
SERIAL NO.: 10/661,466 GROUP NO.: 1631
FILING DATE: September 11, 2003 EXAMINER: Not yet assigned
TITLE: Quantum Information Processing Elements and Quantum Information
Processing Platforms Using Such Elements

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

In accordance with the provisions of 37 C.F.R. 1.97 and 1.98, Applicants hereby make of record the patents and publications listed on the accompanying Form PTO-1449, and other information contained herein, for consideration by the Examiner in connection with the examination of the above-identified patent application. In accordance with the U.S. Patent Office's partial waiver of the requirement under 37 C.F.R. 1.98(a)(2)(i), only copies of the foreign patent documents and non-patent publications are enclosed.

REMARKS

In accordance with the provisions of 37 C.F.R. 1.97, this statement is being filed (CHECK ONE):

- ☒ (1) within three (3) months of the **filing date** of a national application other than a continued prosecution application under 37 C.F.R. 1.53(d), or within three (3) months of the **date of entry of the national stage** as set forth in 37 C.F.R. 1.491 in an international application, or before the mailing of the **first Office action** on the merits, or before the mailing of a **first Office action** after the filing of a request for continued examination under 37 C.F.R. 1.114; or
- ☐ (2) after the period defined in (1) but before the mailing date of a **final action** or a **notice of allowance** under 37 C.F.R. 1.311, and
- ☐ the requisite Statement is below, **OR**

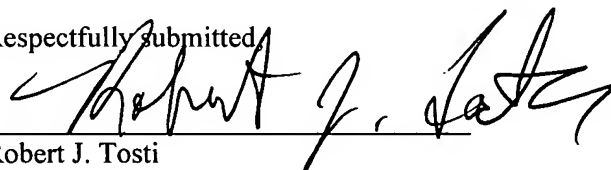
- ☐ the requisite fee under 37 C.F.R. 1.17(p), namely **\$180.00**, is included herein, or
- ☐ (3) after the mailing date of a **final action** or **notice of allowance** but before the payment of the **issue fee**, **AND**
- ☐ the requisite Statement is below, **AND**
- ☐ the requisite petition fee under 37 C.F.R. 1.17(p), namely **\$180.00** is included herein.

It is respectfully requested that each of the patents and publications listed on the attached Form PTO-1449, and other information contained herein, be made of record in this application.

Date: July 19, 2004
Reg. No. 35,393

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Respectfully submitted,



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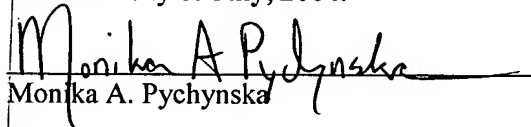
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TITLE: Quantum Information Processing Elements and Quantum Information
Processing Platforms Using Such Elements

CERTIFICATE OF FIRST CLASS MAILING UNDER 37 C.F.R. 1.8

I hereby certify that this correspondence, and any document(s) referred to as enclosed herein, is/are being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to the **Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450** on this 19th day of July, 2004.


Monika A. Pychynska

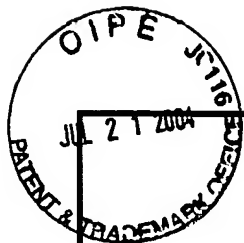
Mail Stop Amendment
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Sir:

Submitted herewith is/are:

Submitted are:

- (1) Transmittal Form (1 pg.);
- (2) Information Disclosure Statement (2 pgs.);
- (3) PTO Form-1449 (6 pgs.);
- (4) copies of references cited (C1-C95); and
- (5) a return receipt postcard.



TRANSMITTAL FORM

Application Serial Number	10/661,466
Filing Date	September 11, 2003
First Named Inventor	Vitaliano
Group Art Unit	1631
Examiner Name	Not yet assigned
Attorney Docket No.	VXM-001B
BATCH NO. (after allowance)	Not applicable
Patent No.	Not applicable
Issue Date	Not applicable

ENCLOSURES (check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Check Attached <input type="checkbox"/> Copy of Fee Transmittal Form <input type="checkbox"/> Amendment/Response <input type="checkbox"/> Preliminary <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Letter to Official Draftsperson including Drawings [Total Sheets ____] <input type="checkbox"/> Petition for Extension of Time <input checked="" type="checkbox"/> Information Disclosure Statement <input checked="" type="checkbox"/> Form PTO-1449 <input checked="" type="checkbox"/> Copies of IDS References (C1-C95) <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Sequence Listing submission <input type="checkbox"/> Paper Copy/CD <input type="checkbox"/> Computer Readable Copy <input type="checkbox"/> Statement verifying identity of above	<input type="checkbox"/> Copy of Notice to File Missing Parts of Application (PTO-1553) <input type="checkbox"/> Formal Drawing(s) <input type="checkbox"/> Request For Continued Examination (RCE) Transmittal <input type="checkbox"/> Power of Attorney (Revocation of Prior Powers) <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Executed Declaration and Power of Attorney for Utility or Design Patent Application <input type="checkbox"/> Small Entity Statement <input type="checkbox"/> CD(s) for large table or computer program <input type="checkbox"/> Amendment After Allowance <input type="checkbox"/> Request for Certificate of Correction <input type="checkbox"/> Certificate of Correction (in duplicate)	<input type="checkbox"/> Notice of Appeal to Board of Patent Appeals and Interferences <input type="checkbox"/> Appeal Brief (in triplicate) <input type="checkbox"/> Status Inquiry <input checked="" type="checkbox"/> Return Receipt Postcard <input checked="" type="checkbox"/> Certificate of First Class Mailing under 37 C.F.R. 1.8 <input type="checkbox"/> Certificate of Facsimile Transmission under 37 C.F.R. 1.8 <input type="checkbox"/> Additional Enclosure(s) (please identify below)
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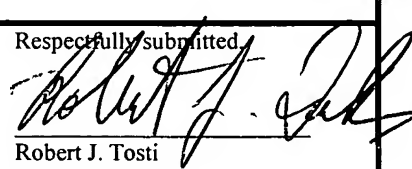
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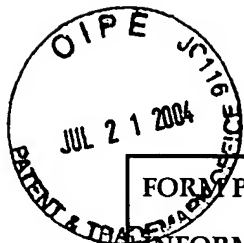
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SIGNATURE BLOCK

Date: July 19, 2004
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Respectfully submitted,


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FORM PTO - 1449 INFORMATION DISCLOSURE STATEMENT	ATTORNEY DOCKET NO.: VXM-001B APPLICANT(S): Vitaliano et al. SERIAL NO.: 10/661,466 FILING DATE: September 11, 2003 GROUP: 1631
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U.S. PATENT DOCUMENTS

EXAM. INIT.	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	A1	4,367,066	01/04/83	Zellweger, S.	434	433
	A2	4,999,842	3/12/91	Huang et al.	372	45
	A3	5,287,377	02/15/94	Fukuzawa et al.	372	45
	A4	5,613,140	03/18/97	Taira, K.	395	800
	A5	5,671,437	09/23/97	Taira, K.	395	800
	A6	5,838,436	11/17/98	Hotaling et al.	356	345
	A7	5,940,193	08/17/99	Hotaling et al.	359	11
	A8	6,437,413 B1	08/20/02	Yamaguchi et al.	257	421
	A9	6,456,994 B1	09/24/02	Tucci, R.	706	52
	A10	6,459,097 B1	10/01/02	Zagoskin, A.	257	31
	A11	6,472,681 B1	10/29/02	Kane, B.	257	14

FOREIGN PATENT DOCUMENTS

EXAM. INIT.	DOCUMENT NUMBER	DATE	COUNTRY CODE	CLASS	SUB CLASS	FILING DATE	ABSTRACT ONLY	ENGLISH LANG (Y/N)

OTHER ART, JOURNAL ARTICLES, ETC.

EXAM. INIT.	OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)
C1	Abe, E. (2001) "ESR on Shallow Donors in Ge," (PowerPoint Presentation)
C2	Barenco et al. (1996) "A short introduction to quantum computation," www.qubit.org/library/intros/comp/comp.html .
C3	Bayer, M. (August 8, 2002) "One at a time, please," <i>Nature</i> 418: 597-598.

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		FILING DATE: September 11, 2003 GROUP: 1631
	C4	Benjamin et al. (date unknown) "Towards Quantum Information Technology," www.qubit.org/library/intros/nano/nano.html
	C5	Blatt, R. (2001) "Delicate information," <i>Nature</i> 412: 773.
	C6	Borbat et al. (April 19, 2002) "Protein Structure Determination Using Long-Distance Constraints from Double-Quantum Coherence ESR: Study of T4 Lysozyme," <i>J. Am. Chem. Soc.</i> 124: 5304-5314.
	C7	Brown J. (2000) "Minds, Machines and the Multiverse (The Quest for the Quantum Computer)," Chapter 1, Simon & Schuster 2000
	C8	Cheetham et al. (1996) "Inhibition of hsc70-catalysed clathrin uncoating by HSP70 proteins," <i>Biochem J.</i> 319: 103-108.
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	C12	Crotzer, V. L. et al. (2001) "The Role and Regulation of Clathrin in T cell Receptor Internalization," (Abstract) www.midwconferimmunol.org/Midwinter01/posters/crotzer.html
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	C14	De Martini et al. (October 24, 2002) "Experimental realization of the quantum universal NOT gate," <i>Nature</i> 419: 815-818
	C15	DiVincenzo, D. (1996) "Gates and Circuits: Sleator-Weinfurter construction: $V^2=U$," <i>Phil Trans. R. Soc. Lond. A</i> : 9-18.
	C16	DiVincenzo, D. (1997) "Quantum Gates and Circuits," <i>Phil Trans. R. Soc. Lond. A.</i> , Submitted
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	C18	Dowling et al. (date unknown) "Electron-Nuclear-Double-Resonance Quantum Computer"
	C19	Follstaedt et al. (2000) "Protein Adhesion on SAM Coated Semiconductor Wafers: Hydrophobic Versus Hydrophilic Surfaces," Sandia Report SAND_2000-3016
	C20	Gad, H. et al. (2000) "Fission and uncoating of synaptic clathrin-coated vesicles are per turbed by disruption of interactions with the SH3 domain of endophilin," <i>Nature</i> 27:301-312 (Abstract only)
	C21	Gad, H. (2000) "Synaptic vesicle endocytosis studied in a living synapse," (Ph.D. Thesis) Karolinska Institute. (conclusions drawn from Ph.D. thesis)
	C22	Gershenfeld et al. (1998) "Quantum Computing with Molecules," <i>Scientific American</i> . June 1998 (www.media.mit.edu/physics/publications/papers/98.06.sciam/0698gershenfeld.html)

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	C23	Gisin, N. (October 24, 2002) "NOT logic," <i>Nature</i> 419: 797-798.
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	C25	Hameroff, S. (date unknown) "What is Consciousness," www.consciousness.arizona.edu/hameroff/slide%20show/slideshow_6.htm
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	C27	Hameroff et al (1998) "Quantum Theory and Human Consciousness," 47-62
	C28	Hardy et al. (2000) "Universal Manipulation of a Single Qubit," Centre for Quantum Computation, Clarendon Laboratory, Department of Physics, University of Oxford.
	C29	Harneit et al. (date unknown) "N@C ₆₀ for Quantum Computing," ...
	C30	Harneit et al. (July 20, 2002) "Architectures for a Spin Quantum Computer Based on Endohedral Fullerenes," <i>Phys. Stat. Sol.</i> 233: 453-461.
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	C34	Jaksch et al. (date unknown) "Review of quantum computer implementations with quantum optical systems," Institute for Theoretical Physics, Innsbruck (PowerPoint Presentation)
	C35	Kanaseki et al. (1969) "The Vesicle in a Basket: A Morphological Study of the Coated Vesicle Isolated from the Nerve Endings of the Guinea Pig Brain, with Special Reference to the Mechanism of Membrane Movements," <i>Journal of Cell Biology</i> 42: 202-220.
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	C40	Leuenberger et al. (2001) "Quantum computing in molecular magnets," Department of Physics and Astronomy, University of Basel, Switzerland.
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	C42	Liu et al. (2001) "Observation of coherent optical information storage in an atomic medium using halted light pulses," <i>Nature</i> 409: 490-493
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	C44	Mekis, A. et al. (1995) "Ray chaos and Q-spoiling in Lasing Droplets," <i>Phys. Rev. Lett.</i> 75: 2682-2686
	C45	Mullins, J. (2001) "The Topsy Turvey World of Quantum Computing," <i>IEEE Spectrum</i> : 42-49.
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	C49	Oskin et al. (January 2002) "A Practical Architecture for Reliable Quantum Computers," <i>Computer</i> : 79-87.
	C50	Owen, D.J. (2000) "The structure and function of the β 2-adaptin appendage domain," <i>EMBO Journal</i> 19: 4216-4227
	C51	Pan et al. (date unknown) "A Precision Technology for Controlling Protein Adsorption and Cell Adhesion in Biomems," (manuscript)
	C52	Preskill, J. (1997) "Reliable Quantum Computers," (manuscript) California Institute of Technology. (www.arxiv.org)
	C53	Redfern, C. (1999) "Conditional expression and signaling of a specifically designed G _i -coupled receptor in transgenic mice," <i>Nature Biotechnology</i> 17: 165-169
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	C61	Steane, A. (1997) "Quantum Computing," Department of Atomic and Laser Physics, University of Oxford, Clarendon Laboratory: 1-65.
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	C64	Takei et al. (1998) "Generation of Coated Intermediates of Clathrin-Mediated Endocytosis on Protein-Free Liposomes," <i>Cell</i> 94: 131-141
	C65	Twamley, J. (October 30, 2002) "Quantum cellular automata quantum computing with endohedral fullerenes," (manuscript) (www.arxiv.org)
	C66	Van Koppen, C. J. (date unknown) "Multiple pathways for the dynamin-regulated internalization of muscarinic acetylcholine receptors" (Abstract)
	C67	Vitaliano, F. (2001) "The Next Big Thing That Will Change Absolutely Everything," www.vxm.com/Speed.quantum.html
	C68	Vitaliano, F. (June 18, 2002) "VXMaia: A New Quantum Computing System," (PowerPoint Presentation)
	C69	Vitaliano, F. (October 23, 2002) "VXMaia: A New Quantum Computing System for Biotech," (PowerPoint Presentation)
	C70	Vitaliano, F. (February 2003) "VXMaia: A New Quantum Computing Platform" (PowerPoint Presentation)
	C71	Vitaliano, F. (September 2003) "EXQOR: A New NBIC Platform" (PowerPoint Presentation)
	C72	Vitaliano, F. (February 2004) "ExQor: A New NBIC Platform"
	C73	Vitaliano et al. (January 29, 2004) "Clathrin and Endocytosis" (PowerPoint Presentation)
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	C76	Ybe et al. (1998) "Clathrin self-assembly is regulated by three light-chain residues controlling the formation of critical salt bridges," <i>The EMBO Journal</i> 17: 1297-1303.
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	C78	Ybe et al. (date unknown) "Crystal structure of a repeating superhelix motif in the clathrin triskelion leg,"
	C79	Ybe et al. (2000) "Molecular Structures of Proteins Involved in Vesicle Fusion," <i>Traffic</i> 1: 474-479.
	C80	"Adaptin β ", (date unknown) Catalog number A35620. Transduction Laboratories, 133 Venture Court, Lexington, KY 40511-2624
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	C82	Centre for Quantum Computation, www.qubit.org (date unknown)
	C83	"Continuous Wave ENDOR," (date unknown)
	C84	"Electron Spin Resonance (ESR)," (2000) Physics 77, Experiment 6
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	C86	"Genecard for gene CLTCL1," www.rzpd.de/cgi-bin/cards/carddisp?CLTCL1 (date unknown)
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	C88	"pET-15b Vector," (1998), Novagen Catalog
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	C90	"QIAexpress - The Complete System," Qiagen Catalog www.qiagen.com/catalog/auto/cget.asp?p=QIAexpress_complete_system (date unknown)
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	C92	"Receptor Mediated Endocytosis," www.erin.utoronto.ca/~w3bio315/RME.htm (date unknown)
	C93	"Simple quantum gates," www.qubit.org/library/intros/comp/inset2.html (date unknown)
	C94	"Universal gates," http://planck.thphys.may.ie/jtwamley/thesis/Hovland/thesis/node17.shtml (date unknown)
	C95	Harneit, W. (2001) "A fullerene-based electron spin quantum computer," (manuscript)
EXAMINER		DATE CONSIDERED